

## SEQUENCE LISTING



<110> Jackson, Stephen P  
Lakin, Nicholas D  
Smith, Graeme CM

<120> Interactions of ATM, ATR or DNA-PK with p53

<130> MEWE-010

<140> US 09/462,962

<141> 2001-06-25

<150> PCT/GB98/02115

<151> 1998-07-16

<150> GB 9714971.0

<151> 1997-07-16

<160> 26

<170> PatentIn Ver. 2.1

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<213> Homo sapiens

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<212> PRT

<213> Homo sapiens

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Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu
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```

Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp
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```

```

Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro
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```

Arg Met Pro Glu Ala Ala Pro Pro Val Ala Pro Ala Pro Ala Thr Pro
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```

Thr Pro Ala Ala Pro Ala Pro Ala Pro Ser Trp Pro Leu Ser Ser Ser
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```

```

Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly
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Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro
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Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln
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Leu Trp Val Asp Ser Thr Pro Pro Pro Gly Thr Arg Val Arg Ala Met
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Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg Cys  
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```

Pro Arg Gln Ile Leu Cys Gln Phe Ile Asp Arg Ile Leu Thr Asp Val
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```

Asn Val Val Ala Val Glu Leu Val Lys Lys Thr Asp Ser Gln Pro Thr
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```

Ser Val Met Leu Leu Asp Phe Ile Gln His Ile Met Lys Ser Ser Pro
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Leu Met Phe Val Asn Val Ser Gly Ser His Glu Ala Lys Gly Ser Cys
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Ile Glu Phe Ser Asn Trp Ile Ile Thr Arg Leu Leu Arg Ile Ala Ala
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```

```

Thr Pro Ser Cys His Leu Leu His Lys Lys Ile Cys Glu Val Ile Cys
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Ser Leu Leu Phe Leu Phe Lys Ser Lys Ser Pro Ala Ile Phe Gly Val
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```

Leu Thr Lys Glu Leu Leu Gln Leu Phe Glu Asp Leu Val Tyr Leu His
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```

Arg Arg Asn Val Met Gly His Ala Val Glu Trp Pro Val Val Met Ser
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Arg Phe Leu Ser Gln Leu Asp Glu His Met Gly Tyr Leu Gln Ser Ala
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Pro Leu Gln Leu Met Ser Met Gln Asn Leu Glu Phe Ile Glu Val Thr
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Leu Leu Met Val Leu Thr Arg Ile Ile Ala Ile Val Phe Phe Arg Arg
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Lys Leu Tyr Glu Glu Pro Leu Ser Lys Leu Ile Lys Thr Leu Phe Pro						
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Lys Val Tyr Val Arg Asn Ile Cys Lys Ala Leu Leu Asp Val Leu Gly						
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Ile Glu Val Asp Ala Glu Tyr Leu Leu Gly Pro Leu Tyr Ala Ala Leu						
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Lys Met Glu Ser Met Glu Ile Ile Glu Glu Ile Gln Cys Gln Thr Gln						
	405	410		415		
Gln Glu Asn Leu Ser Ser Asn Ser Asp Gly Ile Ser Pro Lys Arg Arg						
	420	425		430		
Arg Leu Ser Ser Ser Leu Asn Pro Ser Lys Arg Ala Pro Lys Gln Thr						
	435	440		445		
Glu Glu Ile Lys His Val Asp Met Asn Gln Lys Ser Ile Leu Trp Ser						
	450	455		460		
Ala Leu Lys Gln Lys Ala Glu Ser Leu Gln Ile Ser Leu Glu Tyr Ser						
465	470	475		480		
Gly Leu Lys Asn Pro Val Ile Glu Met Leu Glu Gly Ile Ala Val Val						
	485	490		495		
Leu Gln Leu Thr Ala Leu Cys Thr Val His Cys Ser His Gln Asn Met						
	500	505		510		
Asn Cys Arg Thr Phe Lys Asp Cys Gln His Lys Ser Lys Lys Lys Pro						
	515	520		525		
Ser Val Val Ile Thr Trp Met Ser Leu Asp Phe Tyr Thr Lys Val Leu						
	530	535		540		
Lys Ser Cys Arg Ser Leu Leu Glu Ser Val Gln Lys Leu Asp Leu Glu						
545	550	555		560		



Ala	Thr	Ile	Asp	Lys	Val	Val	Lys	Ile	Tyr	Asp	Ala	Leu	Ile	Tyr	Met	565	570	575
Gln	Val	Asn	Ser	Ser	Phe	Glu	Asp	His	Ile	Leu	Glu	Asp	Leu	Cys	Gly	580	585	590
Met	Leu	Ser	Leu	Pro	Trp	Ile	Tyr	Ser	His	Ser	Asp	Asp	Gly	Cys	Leu	595	600	605
Lys	Leu	Thr	Thr	Phe	Ala	Ala	Asn	Leu	Leu	Thr	Leu	Ser	Cys	Arg	Ile	610	615	620
Ser	Asp	Ser	Tyr	Ser	Pro	Gln	Ala	Gln	Ser	Arg	Cys	Val	Phe	Leu	Leu	625	630	635
Thr	Leu	Phe	Pro	Arg	Arg	Ile	Phe	Leu	Glu	Trp	Arg	Thr	Ala	Val	Tyr	645	650	655
Asn	Trp	Ala	Leu	Gln	Ser	Ser	His	Glu	Val	Ile	Arg	Ala	Ser	Cys	Val	660	665	670
Ser	Gly	Phe	Phe	Ile	Leu	Leu	Gln	Gln	Gln	Asn	Ser	Cys	Asn	Arg	Val	675	680	685
Pro	Lys	Ile	Leu	Ile	Asp	Lys	Val	Lys	Asp	Asp	Ser	Asp	Ile	Val	Lys	690	695	700
Lys	Glu	Phe	Ala	Ser	Ile	Leu	Gly	Gln	Leu	Val	Cys	Thr	Leu	His	Gly	705	710	715
Met	Phe	Tyr	Leu	Thr	Ser	Ser	Leu	Thr	Glu	Pro	Phe	Ser	Glu	His	Gly	725	730	735
His	Val	Asp	Leu	Phe	Cys	Arg	Asn	Leu	Lys	Ala	Thr	Ser	Gln	His	Glu	740	745	750
Cys	Ser	Ser	Ser	Gln	Leu	Lys	Ala	Ser	Val	Cys	Lys	Pro	Phe	Leu	Phe	755	760	765
Leu	Leu	Lys	Lys	Lys	Ile	Pro	Ser	Pro	Val	Lys	Leu	Ala	Phe	Ile	Asp	770	775	780
Asn	Leu	His	His	Leu	Cys	Lys	His	Leu	Asp	Phe	Arg	Glu	Asp	Glu	Thr	785	790	795
Asp	Val	Lys	Ala	Val	Leu	Gly	Thr	Leu	Leu	Asn	Leu	Met	Glu	Asp	Pro	805	810	815
Asp	Lys	Asp	Val	Arg	Val	Ala	Phe	Ser	Gly	Asn	Ile	Lys	His	Ile	Leu	820	825	830
Glu	Ser	Leu	Asp	Ser	Glu	Asp	Gly	Phe	Ile	Lys	Glu	Leu	Phe	Val	Leu	835	840	845
Arg	Met	Lys	Glu	Ala	Tyr	Thr	His	Ala	Gln	Ile	Ser	Arg	Asn	Asn	Glu	850	855	860
Leu	Lys	Asp	Thr	Leu	Ile	Leu	Thr	Thr	Gly	Asp	Ile	Gly	Arg	Ala	Ala	865	870	875
Lys	Gly	Asp	Leu	Val	Pro	Phe	Ala	Leu	Leu	His	Leu	Leu	His	Cys	Leu	885	890	895

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 Gln Met Thr Ala Leu Pro Asn Thr Pro Cys Gln Asn Ala Asp Val Arg  
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 Lys Gln Asp Val Ala His Gln Arg Glu Met Ala Leu Asn Thr Leu Ser  
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 Val Cys Ser Cys Ser Lys Asp Glu Leu Glu Arg Ala Leu His Tyr Leu  
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 Gln Gly Leu His Asn Glu Leu Leu Leu Arg Ile Gly Glu His Tyr Gln  
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 Gln Val Phe Asn Gly Leu Ser Ile Leu Ala Ser Phe Ala Ser Ser Asp  
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 Asp Pro Tyr Gln Gly Pro Arg Asp Ile Ile Ser Pro Glu Leu Met Ala  
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Ile Phe His Tyr Leu Ile Ile Glu Asn Arg Asp Ala Val Gln Asp Phe 1235 1240 1245		
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Val Asp Val Arg Ile His Ala Leu Thr Ser Leu Lys Glu Thr Leu Tyr 1300 1305 1310		
Lys Asn Gln Glu Lys Leu Ile Lys Tyr Ala Thr Asp Ser Glu Thr Val 1315 1320 1325		
Glu Pro Ile Ile Ser Gln Leu Val Thr Val Leu Leu Lys Gly Cys Gln 1330 1335 1340		
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Gln Gly Lys Asp Phe Thr Phe Val Thr Gly Val Glu Asp Ser Ser Phe 1380 1385 1390		
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Leu Ser Ile Tyr Asp Cys Arg Glu Met Glu Thr Asn Gly Pro Gly His 1425 1430 1435 1440		
Gln Leu Trp Arg Arg Phe Pro Glu His Val Arg Glu Ile Leu Glu Pro 1445 1450 1455		
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Asp Phe Lys Val Thr Ile Tyr Leu Leu Pro His Ile Leu Val Tyr Val 1525 1530 1535		
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 Gly Asp Ser Ser Gln Glu Asp Ser Leu Asn Trp Val Ala Arg Leu Glu  
 1875 1880 1885

Met Thr Gln Asn Ser Tyr Arg Ala Lys Glu Pro Ile Leu Ala Leu Arg  
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 1940 1945 1950  
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 Arg Ala Met Leu Leu Val Gly Arg Phe Met Glu Glu Thr Ala Asn Phe  
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Ile Leu Gly Thr His Ala Asn His Ala Ser His Glu Pro Phe Pro Gly		
	2275	2280 2285
His Trp Ala Tyr Ile Ala Gly Phe Asp Asp Met Val Glu Ile Leu Ala		
	2290	2295 2300
Ser Leu Gln Lys Pro Lys Lys Ile Ser Leu Lys Gly Ser Asp Gly Lys		
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Phe Tyr Ile Met Met Cys Lys Pro Lys Asp Asp Leu Arg Lys Asp Cys		
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Ala Glu Ser Arg Arg Arg Glu Leu His Ile Arg Thr Tyr Ala Val Ile		
	2355	2360 2365
Pro Leu Asn Asp Glu Cys Gly Ile Ile Glu Trp Val Asn Asn Thr Ala		
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Gly Leu Arg Pro Ile Leu Thr Lys Leu Tyr Lys Glu Lys Gly Val Tyr		
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Met Thr Gly Lys Glu Leu Arg Gln Cys Met Leu Pro Lys Ser Ala Ala		
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Leu Ser Glu Lys Leu Lys Val Phe Arg Glu Phe Leu Leu Pro Arg His		
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Ser Met Val Gly Tyr Ile Leu Gly Leu Gly Asp Arg His Gly Glu Asn		
	2465	2470 2475 2480
Ile Leu Phe Asp Ser Leu Thr Gly Glu Cys Val His Val Asp Phe Asn		
	2485	2490 2495
Cys Leu Phe Asn Lys Gly Glu Thr Phe Glu Val Pro Glu Ile Val Pro		
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Phe Arg Leu Thr His Asn Met Val Asn Gly Met Gly Pro Met Gly Thr		
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Glu Gly Leu Phe Arg Arg Ala Cys Glu Val Thr Met Arg Leu Met Arg		
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<221> SITE

<222> (3316)

<223> Xaa is uncertain

<400> 7

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                20                      25                      30

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Gln Leu Ile Arg Gly Leu Gly Gln Glu Cys Val Leu Ser Ser Ser Pro
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Leu	Leu	Val	Phe	Val	Arg	Lys	Ser	Leu	Asn	Ser	Ile	Glu	Phe	Arg	Glu	65	70	75	80
Cys	Arg	Glu	Glu	Ile	Leu	Lys	Phe	Leu	Cys	Ile	Phe	Leu	Glu	Lys	Met	85	90	95	
Gly	Gln	Lys	Ile	Ala	Pro	Tyr	Ser	Val	Glu	Ile	Lys	Asn	Thr	Cys	Thr	100	105	110	
Ser	Val	Tyr	Thr	Lys	Asp	Arg	Ala	Ala	Lys	Cys	Lys	Ile	Pro	Ala	Leu	115	120	125	
Asp	Leu	Leu	Ile	Lys	Leu	Leu	Gln	Thr	Phe	Arg	Ser	Ser	Arg	Leu	Met	130	135	140	
Asp	Glu	Phe	Lys	Ile	Gly	Glu	Leu	Phe	Ser	Lys	Phe	Tyr	Gly	Glu	Leu	145	150	155	160
Ala	Leu	Lys	Lys	Lys	Ile	Pro	Asp	Thr	Val	Leu	Glu	Lys	Val	Tyr	Glu	165	170	175	
Leu	Leu	Gly	Leu	Leu	Gly	Glu	Val	His	Pro	Ser	Glu	Met	Ile	Asn	Asn	180	185	190	
Ala	Glu	Asn	Leu	Phe	Arg	Ala	Phe	Leu	Gly	Glu	Leu	Lys	Thr	Gln	Met	195	200	205	
Thr	Ser	Ala	Val	Arg	Glu	Pro	Lys	Leu	Pro	Val	Leu	Ala	Gly	Cys	Leu	210	215	220	
Lys	Gly	Leu	Ser	Ser	Leu	Leu	Cys	Asn	Phe	Thr	Lys	Ser	Met	Glu	Glu	225	230	235	240
Asp	Pro	Gln	Thr	Ser	Arg	Glu	Ile	Phe	Asn	Phe	Val	Leu	Lys	Ala	Ile	245	250	255	
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Lys	Gln	Val	Ser	Asn	Met	Val	Ala	Lys	Asn	Ala	Glu	Met	His	Lys	Asn	325	330	335	
Lys	Leu	Gln	Tyr	Phe	Met	Glu	Gln	Phe	Tyr	Gly	Ile	Ile	Arg	Asn	Val	340	345	350	
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Phe	Ala	Gly	Pro	Cys	Lys	Val	Ile	Asn	Ala	Lys	Asp	Val	Asp	Phe	Met				

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Tyr	Val	Glu	Leu	Ile	Gln	Arg	Cys	Lys	Gln	Met	Phe	Leu	Thr	Gln	Thr
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Asp	Thr	Gly	Asp	Tyr	Arg	Val	Tyr	Gln	Met	Pro	Ser	Phe	Leu	Gln	Ser
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Val	Ala	Ser	Val	Leu	Leu	Tyr	Leu	Asp	Thr	Val	Pro	Glu	Val	Tyr	Thr
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Pro	Val	Leu	Glu	His	Leu	Val	Val	Met	Gln	Ile	Asp	Ser	Phe	Pro	Gln
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Tyr	Ser	Pro	Lys	Met	Gln	Leu	Val	Cys	Cys	Arg	Ala	Ile	Val	Lys	Val
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Thr	Val	Val	His	Gln	Gly	Leu	Ile	Arg	Ile	Cys	Ser	Lys	Pro	Val	Val
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Leu	Pro	Lys	Gly	Pro	Glu	Ser	Glu	Ser	Glu	Asp	His	Arg	Ala	Ser	Gly
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Glu	Val	Arg	Thr	Gly	Lys	Trp	Lys	Val	Pro	Thr	Tyr	Lys	Asp	Tyr	Val
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Asp	Leu	Phe	Arg	His	Leu	Leu	Ser	Ser	Asp	Gln	Met	Met	Asp	Ser	Ile
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Asn	His	Leu	Leu	Tyr	Asp	Glu	Phe	Val	Lys	Ser	Val	Leu	Lys	Ile	Val
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Glu	Lys	Leu	Asp	Leu	Thr	Leu	Glu	Ile	Gln	Thr	Val	Gly	Glu	Gln	Glu
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Phe	Phe	Glu	Pro	Trp	Val	Tyr	Ser	Phe	Ser	Tyr	Glu	Leu	Ile	Leu	Gln
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Ser	Thr	Arg	Leu	Pro	Leu	Ile	Ser	Gly	Phe	Tyr	Lys	Leu	Leu	Ser	Ile
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Tyr Lys Asp Glu Leu	Leu Ala Ser Cys Leu Thr Phe Leu Leu Ser Leu	
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Gln Met Ala Phe Lys	Leu Gly Leu Ser Tyr Thr Pro Leu Ala Glu Val	
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Lys Thr Ser Ala Leu	Ser Asp Glu Thr Lys Asn Asn Trp Glu Val Ser	
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Ala Leu Ser Arg Ala	Ala Gln Lys Gly Phe Asn Lys Val Val Leu Lys	
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Pro Phe Arg Glu Met	Lys Pro Val Ile Phe Leu Asp Val Phe Leu Pro	
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Asp Gln Val Thr Arg	Gln Leu Tyr Glu Pro Leu Val Met Gln Leu Ile	
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His Trp Phe Thr Asn	Asn Lys Lys Phe Glu Ser Gln Asp Thr Val Ser	
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Leu Leu Glu Ala Ile	Leu Asp Gly Ile Val Asp Pro Val Asp Ser Thr	
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Leu Arg Asp Phe Cys	Gly Arg Cys Ile Arg Glu Phe Leu Lys Trp Ser	
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 1845 1850 1855  
 Lys Leu Asn Glu Ser Thr Phe Asp Thr Gln Ile Thr Lys Lys Met Gly  
 1860 1865 1870  
 Tyr Tyr Lys Ile Leu Asp Val Met Tyr Ser Arg Leu Pro Lys Asp Asp  
 1875 1880 1885  
 Val His Ala Lys Glu Ser Lys Ile Asn Gln Val Phe His Gly Ser Cys  
 1890 1895 1900  
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 1985 1990 1995 2000  
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Ser Lys Asp Phe Val Gln Val Met Arg His Arg Asp Glu Arg Gln Lys		
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	2530	2535 2540
Tyr Ser Pro Lys Ile Glu Val His Phe Leu Ser Leu Ala Thr Asn Phe		
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